Programming Plans

NORAD CHEYENNE MOUNTAIN COMPLEX (CMC)

This regulation describes the control process for implementing changes in the NORAD Cheyenne Mountain Complex (CMC). It establishes the Programming Plan (P-Plan) as the controlling implementation document for each change. It applies to all program managers within the command.

Chapter 1 gives an overview along with basic responsibilities for the development of programming plans.

Chapter 2 deals with the Cheyenne Mountain Complex change control process. It explains background, change control phases and activities.

Chapter 3 explains the programming plan format.

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Chapter 1

GENERAL

1-1. Overview:

a. NORAD is constantly improving and expanding the CMC operational capabilities with new programs acquired under the 100, 300 or 800 series or modified under AFR 57-4. These changes compete for available facility and manpower resources. Also, they must be coordinated with each other and with existing systems to ensure compatibility, interoperability, and uninterrupted operation of the CMC. This resource allocation and control function is assigned to the DCS/Cheyenne Mountain Development (XD). For the XD Charter, please refer to N/S Regulation 20-3.

b. The basic tool for change control and resource allocation is the P-Plan. The P-Plan reflects each change's impact on the CMC. The amount of detail in a P-Plan will vary depending upon the complexity and impact of the change. This regulation establishes a format that applies to all XD-controlled CMC changes, but there is no intent to duplicate information already published in other documents. The primary purpose of a P-Plan is to provide enough information to successfully integrate a change with other proposed changes and with the existing operational system.

c. Chapter 2 describes the overall CMC change control process in detail. The NORAD Programming Plan (P-Plan) is the controlling document for the change control process. Through the P-Plan XD obtains requirements and commits critical resources and schedules associated with each CMC modification. Chapter 3 contains detailed instructions for preparing and using the P-Plan. It also tells who is responsible for preparing the plan and committing the resources.

1-2. Basic Responsibilities:

a. DCS/Plans assigns a Program Manager to each 800 series program. The Program Manager prepares a P-Plan (Proposed) prior to initiating the acquisition process.

b. DCS/Communications, Electronics and Computer Resources assigns a Program Manager to each 100/300 series program. The Program Manager prepares a P-Plan (Proposed) prior to initiating the acquisition process.

c. The DCS/Civil Engineering assigns a Program Manager for each Civil Engineering program (except those cited in paragraphs 1a and 1b above) that will impact the CMC resources. The Program Manager prepares a P-Plan (Proposed) prior to initiating any facility modifications.

d. In all other cases, the DCS responsible for initiating a change to the CMC will assign a Program Manager. The Program Manager prepares the P-Plan (Proposed) prior to the acquisition process or engineering design period.

e. The Program Manager manages the program through attainment of Initial Operational Capability. The P-Plan is the document which XD and Operations personnel use to control integration of the program into the operational environment. In most cases, operational resources and schedules will not be committed nor will the acquisition process be initiated until the P-Plan is approved and signed by the DCS/Cheyenne Mountain Development (XD).

f. Each DCS and Special Staff Element assigns OPRs to work with the Program Manager and to prepare P-Plan annexes required by this regulation and requested by the Program Manager.

g. Changes to the CMC operational environment require prior review by XD and, possibly, a CMC P-Plan, even if an acquisition process is not involved. XD usually performs this review as a function of its membership on the various boards and panels.

h. Disagreements on the need for a P-Plan for a specific project are resolved by XD and the DCS involved.

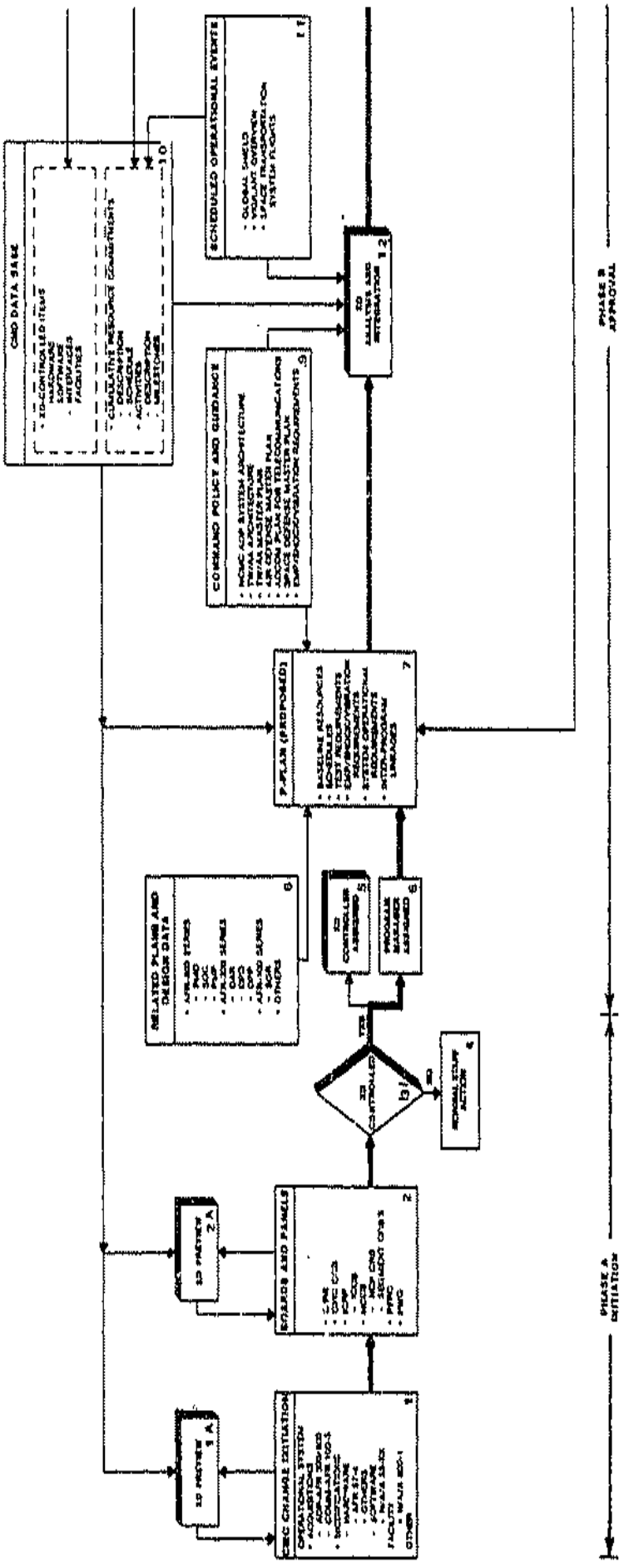

Figure 1. CMC Change Control Process.

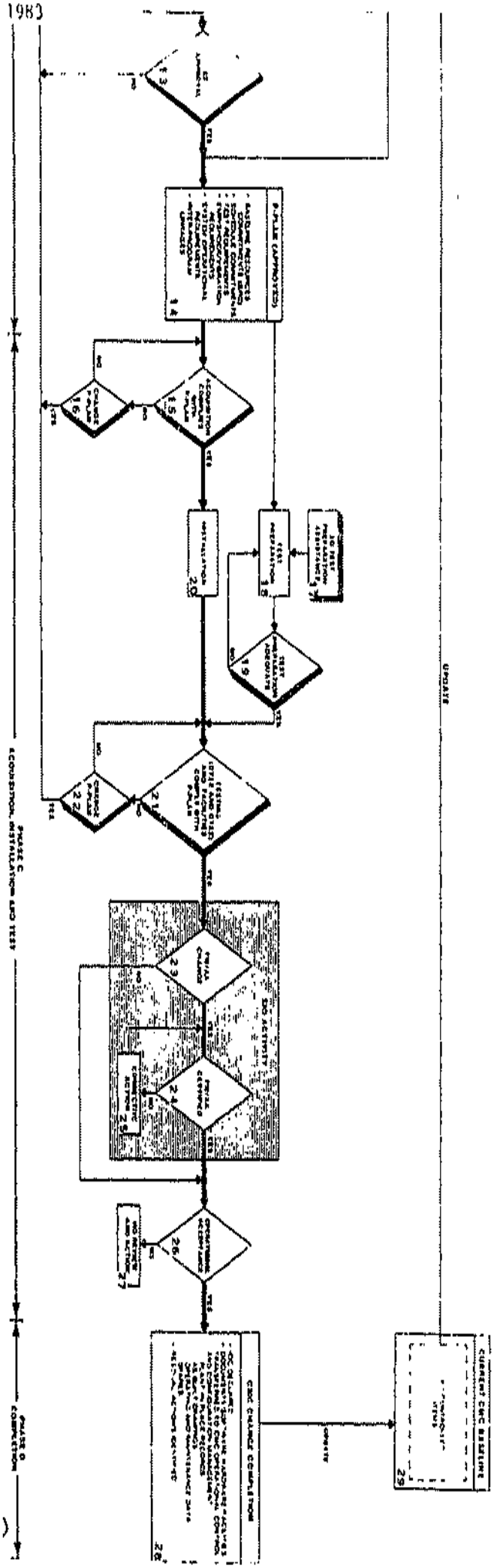

Figure 1. (Continued.)

TABLE 1

ANNEX A RESOURCES

INCLUDED IN P-PLAN (APPROVED)

	RESOURCE *(TABLE)		RESOURCE REQUIREMENTS		PROGRAM MANAGER'S POINT OF CONTACT	RESOURCE COMMITMENT	
			BASELINE	MODIFIED BASELINE	ORGANIZATION	OFFICE	REFERENCE
ADP	CSS	1a					
	NCS	1b					
	SCC	1c					
	MEBU	1d					
	IDHS	1e					
	SYSTEM SUPPORT	1f					
COMM	CCTV	1g					
	COMM CIRCUITS	1h					
	VOICE						
NEW ITEMS TO BE ADDED WILL BE ENTERED HERE							
			ADDITIONS OR MODIFICATIONS				
FAC	SPACE	1j					
	AIR CONDITIONING	1k					
	POWER	1l					
	INTERBLDG CONNECTIONS	1i					

TABLE 1
ANNEX A RESOURCES INCLUDED IN P-PLAN (APPROVED)

* EACH RESOURCE IS DEFINED IN THE TABLES IDENTIFIED FOR EACH ENTRY

SW = SOFTWARE/HW = HARDWARE
TBD = TO BE DETERMINED

TABLE 1a

COMMUNICATIONS SYSTEM SEGMENT (CSS)

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE LINE	*MOD	YES	NO	REMARKS
MODE					
A6060					
HOT/SHADOW					
PARTITION HOT					
PROGRAM TEST					
LONESME HOT					
HW					
H6060's (A, B)					
NOVA 840 MULTIPLEXERS (A, B)					
TECHNICAL CONTROL CONSOLES (4)					
TRAFFIC SERVICE CONSOLES (2)					
NOVA 1220's (TECHNICAL CONTROL CONSOLES)					
VIP's (CSS, NRC)					
NON-IMPACT PRINTER (NIP)					
NOVA 840 COMMUNICATIONS PERFORMANCE MONITOR (CPM) (RED, BLACK)					
COMMUNICATIONS CIRCUIT EQUIPMENT SWITCHING (WPIE) (2)					
INTERCOMPUTER PROCESSOR (ICP)					
SW					
VERSION RELEASE					
6050_____					
MULTIPLEXER_____					
ICP_____					

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

APPROVED: _____

DATE: _____

TABLE 1b
NORAD COMPUTER SYSTEM (NCS)

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE LINE	MOD	YES	NO	REMARKS
MODE					
H6080					
MODE 1					
MODE 2					
MODE 3					
HW					
H6080					
IFP's					
GDC's					
MID's					
SW					
VERSION RELEASE					
H6080					
IFP					
GDC					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE 1c

SPADOC COMPUTATION CENTER (SCC)

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE LINE	*MOD	YES	NO	REMARKS
NODE					
H6080					
NODE 1					
NODE 2					
NODE 3					
S/B					
HW					
H6080					
IFP's					
GDC's					
NID's					
SW					
VERSION RELEASE					
H6080 _____					
IFP _____					
GDC _____					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE 1d
NEBR.

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE-LINE	*MOD	YES	NO	REMARKS
MODE					
PRIME					
STANDBY					
TEST					
HW					
UNIVAC 1100/42 PROCESSOR					
GENERAL COMMUNICATION SUBSYSTEM (GCS) (2)					
DIGITAL SWITCH					
DTVE					
PERIPHERALS					
DISPLAY CONSOLE					
COMMUNICATIONS ADAPTER					
SW					
VERSION RELEASE					
U 1100/42					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE 1e

INTELLIGENCE DATA HANDLING SYSTEM (IDHS)

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE LINE	*MOD	YES	NO	REMARKS
MODE TBD HW H6060 (2) H360 (2) PDP 11/70 SW VERSION RELEASE H6060 _____ H360 _____ PDP 11/70 _____					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE II
SYSTEM SUPPORT

REQUESTED			COMMITTED		
REQUIREMENTS*	BASE LINE	**MOD	YES	NO	REMARKS
HM NOVA 840 - MESSAGE GENERATOR RECORDER (MGR) DATA SCOPE 901 DIGITAL SWITCH PATCH SW VERSION RELEASE NOVA 840 (MGR)_____ DATA SCOPE 901_____ SCOS_____ MGR GEN_____ OSTF FORMAT TRANSLATOR SIMULATOR_____ SCENARIO TEST DATA REQUIRED					

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

APPROVED: _____

DATE: _____

TABLE 3g

CLOSED CIRCUIT TELEVISION (CCTV)

REQUIREMENTS*	REQUESTED BASE LINE	REQUESTED *MOD	COMMITTED YES	COMMITTED NO	REMARKS
MODE					
427M					
CMC CCTV					
DTVE					
TV					
23" MONITORS (17)					
17" MONITORS (17)					
9" MONITORS (3)					
BRIEFING POSITIONS WITH CAMERAS(9)					
20 x 70 SWITCHER (1)					
35 x 11 SWITCHER (AVSM)					
IA					
N/A					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE 1h

COMMUNICATIONS INTERFACES/CIRCUITS

REQUESTED				COMMITTED		
REQUIREMENTS*		BASE LINE	*MOD	YES	NO	REMARKS
CIRCUITS (INCLUDES RELATED HW/SW)						
CMC INTERFACE SENSOR/CMD CNTR	PROTOCOL					
PAVE PAWS	ADCCP					
GEODSS	ADCCP					
BMEWS	ADCCP					
ALEX	ADCCP					
SAC/MW ASCII	ADCCP					
NOOC	ADCCP					
MW TTY	ADCCP					
NMCC	ADCCP					
AFMCC	ADCCP					
BUF						
GCN	EDU					
PARCS	ADCCP					
SHEMYA	ADCCP					
AUTODIN	MODE 1					
PACBAR	MODE 1					
ALTAIR/ALCOR	NON-COORD					
SPADCCS	NON-COORD					
TAC	NON-COORD					
NFARS	NON-COORD					
MACDILL	STANDARD SYNCHRONOUS					
EGLIN	ADCCP					
SUBTAC	N/A					
DSN	N/A					
INTEL. CIR						
NAFTOC	N/A					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE II

SNC VOICE SYSTEM

REQUIREMENTS*	REQUESTED: BASE LINE	REQUESTED: *MOD	COMMITTED: YES	COMMITTED: NO	REMARKS
MSN					
ELECTRONIC SWITCHING SYSTEM (ESS)					
TACTICAL SWITCHBOARD					
SECURE VOICE ACCESS CONSOLE (SEVAC)					
WIDEBAND SWITCH					
SECURE CORDLESS BOARD (SECORD)					
RED PABX					
SENS WARNING SYSTEM					
TW/AA SECURE VOICE CONFERENCE NETWORK					

APPROVED: _____

DATE: _____

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

TABLE Ij

PHYSICAL SPACE

REQUESTED	COMMITTED		
REQUIREMENTS *	YES	NO	REMARKS
FLOOR SPACE SQ. FT.			
EQUIPMENT CONSIDERATIONS			
EQUIPMENT RACKS			
EQUIPMENT ACCESS SPACE			
RAMP/DOORWAY			
WALL AND CEILING ACCESS (CABLES)			
RAISED FLOOR FOR ____ SQ. FT.			
FLOOR LOADING #/SQ. FT.			
ROOM CHARACTERISTICS			
WALLS			
CEILINGS			
LIGHTING			
FLOOR COVERING			
ROOM DRAWING			
SKETCH SHOWING RECOMMENDED EQUIPMENT AND OPERATOR LAYOUT			
SPECIAL			
(SPECIFY)			

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

APPROVED: _____

DATE: _____

TABLE 1k
AIR CONDITIONING

REQUESTED	COMMITTED		
REQUIREMENTS *	YES	NO	REMARKS
MAXIMUM CAPACITY (BTU/HR)			
TEMPERATURE			
HUMIDITY			
TRANSFER MEDIUM			
DUCTING			
SPECIAL			

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

APPROVED: _____
DATE: _____

TABLE II
CMC POWER

REQUESTED	COMMITTED		
REQUIREMENTS *	YES	NO	REMARKS
POWER			
VOLTAGE/PHASES			
FREQUENCY			
POWER FACTOR			
UNINTERRUPTED POWER			
INTERBUILDING CONNECTIONS FROM TO CABLE AREA (IN^2)			

* DESCRIPTION OF MODIFIED ITEMS TO BE ATTACHED FOR APPROVAL.

APPROVED: _____

DATE: _____

Chapter 2

CMC CHANGE CONTROL PROCESS

2-1. Background:

a. The CMC change control process enables the DCS/Cheyenne Mountain Development (XD) to control the planning, integration, and implementation of new systems or changes to existing systems. This process uses existing regulations, procedures and organizations. It provides for efficient use of resources required in implementing changes while ensuring uninterrupted and reliable mission operation.

b. The significant features of the change control process are:

- Timely identification and resolution of schedule and design conflicts.
- Control of CMC resource commitments.
- Interface control.
- Integrated master schedules.
- System integrity.
- Compliance with CMC survivability criteria.

2-2. CMC Change Control Phases:

a. There are four phases in the CMC change control process, as shown in figure 1 on page 40. They are:

- Phase A—INITIATION
- Phase B—APPROVAL
- Phase C—ACQUISITION, INSTALLATION AND TEST
- Phase D—COMPLETION

b. This section is an overview of the four phases. Detailed descriptions of the individual blocks in figure 1 and associated responsibilities are presented in paragraph 3.

(1) Phase A—INITIATION. Someone has proposed a change. Existing authorities (boards and panels) review, validate, and approve/disapprove the proposed change. (XD roles on boards and panels are defined within the respective charters.) If the boards and panels approve the proposed change, then XD reviews it to determine if XD control is required. If it is required, then the change proceeds to the process described in Phase B, Approval. If XD control is not required, the change is worked through the normal staffing process. XD control includes the identification of possible conflicts (scheduling, architecture/plans, regulations, physical resource limitations, etc) and the resolution of these conflicts through the Program Manager in a timely manner. XD control does not imply veto authority.

(2) Phase B—APPROVAL. XD assigns a Controller to assist the Program Manager. The Program Manager prepares a P-Plan (Proposed) reflecting the related plans and design requirements. XD analyzes the change requirements in the P-Plan (Proposed), considering scheduled operational events, resource availability as documented in the CMD data base, inter-program linkages*, logistics and maintenance support, and command policy and guidance. When all parties agree to an acceptable means for integrating the proposed change, XD signs the P-Plan, the Program Manager publishes the P-Plan (Approved), and XD updates the data base that shows the cumulative resource commitments and activities for all approved changes. The change then proceeds to Phase C, Acquisition, Installation and Test.

(3) Phase C—ACQUISITION, INSTALLATION TEST. These activities proceed in accordance with established procedures. If the approved change impacts ongoing activities or other programmed changes, the Program Manager and XD Controller resolve any conflicts using the XD analysis capability. The final action in Phase C is operational acceptance.

(4) Phase D—COMPLETION. IOC is declared for operational changes and the using agencies assume responsibility for operation, maintenance, logistics and configuration control. XD ensures that OPRs update the CMC Baseline and CMD data base.

2-3. CMC Change Control Activities:

a. This section is a detailed description of each of the individual activities in figure 1. The shadowed boxes denote XD activities or decision points.

*Inter-program linkages are the critical relationships between the proposed change, other changes, and the existing system which must be considered by XD to ensure compatibility and to preclude interruptions in operations.

Block 1—CMC Change Initiation
Block 1A—XD Preview

b. The process begins when someone initiates a change for acquisition or modification of data processing or communications capabilities, or for allocations or modifications or CMC facilities (Block 1).

c. Some of the ways to initiate a change are:

(1) Software Modification Request (SMR).

(2) Data Automation Requirement (DAR).

(3) Projected Automation Requirement (PAR).

(4) Change Request (CR).

CR package includes:

(a) NORAD Form 21, NCMC Relocation or Installation Checklist.

(b) NORAD Form 62, NCMC Configuration Item Change Data.

(c) Scale drawings for major room construction or installation or relocation of equipment, and for cable routing changes.

(d) AF Form 332, BCE Work Request, for civil engineering support requirements.

(5) Material Deficiency Report (MDR).

(6) Modification Proposal (MP).

(7) Statement of Operational Need (SON).

(8) Statement of Operational Requirement (SOR).

(9) System Development Notice (SDN).

(10) Discrepancy Report (DR).

(11) Engineering Change Proposal (ECP).

(12) Command, Control and Communications Requirements Board (C^3RB) Communications-Electronics Requirements.

(13) Design Change Request (DCR).

(14) Projected Communications Requirement (PCR).

d. XD previews (Block 1A) the change initiation inputs (Block 1) along with information from the data base (Block 10) which provides information about future programs and their impacts.

Block 2—Boards and Panels
Block 2A—XD Preview

e. Following Change Initiation, one or more of the following boards and panels will process the proposed change in accordance with appropriate regulations and procedures (Block 2).

(1) C^3RB. The Command and Control Communications Requirements Board reviews and validates requirements for Communications-Electronics (C-E) resources for new systems and for modification of existing systems.

(2) CCB. The CMC Configuration Control Board reviews and approves/disapproves requests for configuration changes for air conditioning, electrical power, weight, floor space, survivability issues, and office moves.

(3) ICRP. The IDHS Configuration Review Panel reviews and approves requests for configuration changes to the Intelligence Data Handling System (IDHS) in the ADCOM Intelligence Center (ADIC). A subordinate element, the IDHS Configuration Control Board (ICCB), reviews change requests and provides recommendations to the ICRP.

(4) NCCB. The NORAD Configuration Control Board is the single authority element for configuration control of most hardware, software and firmware that supports NORAD and Space Command missions. The NCCB provides final approval action for recommendations from subordinate boards, panels, and groups. IDHS changes are excluded from NCCB authority. The NORAD Command Post (NCP) Configuration Review Board (CRB) and individual CMC Segment CRBs evaluate change requests and provide recommendations to the NCCB.

(5) PFRC. The Program Forces Review Committee prepares NORAD and Space Command inputs for the Air Force Program Objectives Memorandum (POM) for funding proposed changes.

(6) I^2WG. As an element of XD, the Interface and Integration Working Group is the official coordinator between program managers whose programs affect CMC external or internal communications interfaces. (Note: most changes do affect these interfaces.) The I^2WG also functions as a technical working group to: a) identify and resolve interface discrepancies and problems; b) approve interface agreements; and c) review equipment change proposals, program modification requests, and similar system changes affect the interfaces.

(7) SIO. Early on, the change initiator must advise the System Integration Office of any change that affects the TW/AA system. The SIO Certification Board will review the change and assign a certifying classification.

f. XD observes the actions of the review boards and panels (Block 2). As in Block 1A, this provides information about future programs and their impacts. If the

change encounters serious impacts during the Block 2 process, XD assists in resolving such impacts with the review board or panel. Also as part of the preview, XD insures timely processing of candidate changes being considered for XD control (Block 3).

Block 3—XD Controlled
Block 4—Normal Staff Action

g. XD examines each candidate change to determine if it should be subject to the XD change control process. XD thus filters minor changes out of the process and then recommends further action (Block 4) for them, as appropriate. Changes that XD includes in the CMC control process are those which:

(1) Modify operational capability and impact major CMC areas, including:

(a) Equipment types and quantities.

(b) Test and training facilities.

(c) Software versions that impact the hardware configuration.

(d) Communications.

(e) Interfaces.

(f) CMC facilities:

1 Space allocation.

2 Electrical power.

3 Air conditioning.

(g) External ties to sensor and command facilities.

(h) Compliance with survivability criteria (EMP, shock and vibration).

(2) Are major upgrades to facilities, equipments, communications and software that could disrupt operations and violate system integrity.

(3) Change the availabilities or major characteristics of the controlled resources specified for P-Plans (Blocks 8 and 14).

h. As a general rule, changes which XD will not include in the CMC control process are those which:

(1) Affect only one area (facilities, equipments, communications or software), do not alter operational capability, and can be implemented without operational risk during normal maintenance or training periods.

(2) Do not change the availabilities or characteristics of the controlled resources specified for the P-Plan (Blocks 8 and 14).

i. Since it is not practical to define precise rules for every change, XD initially screens all proposed changes, using the guidelines above, to determine which ones should be included in the CMC control process.

Block 5—XD Controller Assigned
Block 6—Program Manager Assigned

For each XD-controlled change (Block 3), XD assigns a Program Controller (Block 5) and the appropriate DCS assigns a Program Manager (Block 6).

Block 7—P-Plan (Proposed)

j. The Program Manager (Block 6) prepares a P-Plan (Proposed) (Block 7), in compliance with the instructions presented in Chapter 3, NORAD Programming Plan Format. The P-Plan specifies the need for baseline resources (existing, modified or new), including hardware, software, interfaces and facilities (space, air conditioning and power). It identifies requirements for testing, EMP, shock, vibration, configuration documentation (plant in-place records and as-built drawings), maintenance (personnel, training, replacement parts and manuals), and system operations. It also includes a master integration schedule showing critical milestones.

k. The Program Manager submits the P-Plan (Proposed) to XD for integration into the overall change process that considers all P-Plan schedules and resource requirements.

l. The P-Plan (Proposed) also identifies inter-program linkages that XD must consider to assure continuous operational capability and compatible hardware and software integration. Inter-program linkages arise from such items as:

- Mandatory phasing with other planned changes to preclude loss of operational capability.
- Mandatory phasing and design criteria to match existing and planned interfaces.
- Critical milestones related to contractual agreements affecting funding and design factors.

m. In larger programs, the Program Manager does not usually have enough experience to identify all the inter-program linkages; in such cases, XD is responsible for expanding and completing this section, with help from the Program Manager.

Block 8—Related Plans and Design Data

n. In preparing a proposed P-Plan (Block 7), the Program Manager uses information from standard acquisition initiation documents.

o. For an 800 series acquisition, he/she uses the Program Management Directive (PMD), Program Management Plan (PMP), and/or System Operational concept (SOC). Hq USAF publishes the PMD after validation of operational need and allocation of funds. Space Command inputs to the PMD include CMC interface requirements and overall test objectives. The AFSC System Program Office prepares the PMP, which defines interrelationships and responsibilities of the participating major commands and other organizations. The Space Command Program Manager, with assistance from the operational user, prepares a SOC, which describes the intended purpose, employment, deployment, and support of a system to satisfy the operational need; it also identifies the CMC interface requirement, facility constraints, and levels of system performance.

p. For a 300 series acquisition, the Program Manager uses a Data Automation Request (DAR), Projected Automation Requirement (PAR), Data Project Directive (DPD), and/or Data Project Plan (DPP). The user, in concert with Space Command/KR, publishes a DAR or PAR to initiate a change intended to correct ADP deficiencies identified through analysis of functional requirements. For each approved DAR, Hq USAF or Space Command/KR, depending on the complexity of the project, prepares a DPD which defines project scope, designates participants, assigns responsibilities, and authorizes expenditures. The Space Command Program Manager prepares the DPP, which describes actions needed to achieve project performance, schedule and cost objectives.

q. For a 100 series acquisition, the Program Manager uses a Projected Communications Requirement (PCR), Program Support Letter (PSL), and/or Communications-Electronics Implementation Plan (CEIP). After validation of an operational need, Hq Space Command publishes a PCR. An AFCC Engineering and Installation Team conducts a site survey, and the local Civil Engineering staff prepares a PSL. Funds allocation follows approval of the PCR. An AFCC Engineering and Installation Team conducts a site survey. The local Civil Engineering staff prepares a PSL. If justified by the complexity of the project, the Engineering and Installation Team prepares a CEIP. AFR 100-5 and AFR 100-18 explain these responsibilities and procedures in detail.

Block 9—Command Policy and Guidance

r. There are various architectures, plans and EMP/shock/vibration requirements that pertain to the CMC. In developing a P-Plan, the Program Manager must use the most current issues of these documents, including the:

- Space Command Plan for Telecommunications
- Ballistic Missile TW/AA System Architecture
- Air Force Plan for Ballistic Missile TW/AA
- DOD North American Air Defense Master Plan
- CMC ADP Systems Architecture.
- Space Defense Architecture Plan of the Command and Control System, 3 December 1979.
- CMC EMP/Shock/Vibration survivability criteria including N/S Regulation 800-1 and N/A/A Regulation 100-1.

Block 10—CMD Data Base

s. The CMC Baseline (Block 29) consists of a large number of documents such as Interface Control Drawings, hardware specifications, Engineering Change Orders, as-built drawings, etc. A manageable, yet representative, set of these must be XD-controlled items (Block 10). Four steps of the CMC change process use these controlled items, as follows:

(1) P-Plan (Proposed) (Block 7) where resource requirements for each change are based on:

(a) CMC baseline items,

(b) CMC baseline items (modified), and

(c) New items (furnished as part of the change).

(2) XD Analysis and Integration Activity (Block 12) where XD uses these controlled items to identify and resolve problems related to:

(a) Conflicts in schedule,

(b) Conflicts between designs,

(c) Lack of, or non-conformance to, system design, EMP/shock/vibration criteria, and operational requirements.

(d) Maintenance supportability.

(3) XD monitoring (Phase C), where XD uses these controlled items as a master checklist for achieving the compliances required to prevent inter-program conflicts.

(4) CMD Data base (Block 10) updates, where XD and the Program Manager use updated controlled items to support their review of new change proposals (Blocks 1A and 2A), preparation of P-Plan (Block 7) and the XD Analysis and Integration (Block 12).

(a) The final result is a Baseline Resource Commitment for each P-Plan, in definitive terms with availability dates for each item.

Block 11—Scheduled Operational Events

(b) During critical Scheduled Operational Events (Block 11) CMC change activities, such as on-line testing, may have to be limited or stopped. Such events include worldwide war games and exercises such as Global Shield and Vigilant Overview, Space Transportation System flights, and other operations of unusual significance.

(c) XD enters the scheduled times for these events into the CMD Controlled Data Base (Block 10) for use in developing master schedules.

Block 12—XD Analysis and Integration

(d) The XD Analysis and Integration (Block 12) ensures that each P-Plan (Proposed) addresses all of the items (required resources, schedules and requirements) defined for Block 7. Further, in this block XD, with the Program Manager, ensures compliance with Command policy and guidance (Block 9), and resolution of any conflicts in interfaces, resources and schedules (Block 11). XDC will lead the Analysis and Integration efforts, assisted by the organizations responsible for the hardware and software, as per the P-Plan instructions in Chapter 3. XDI and the I²WG will provide major support to this Analysis and Integration effort.

Block 13—XD Approval

(e) The Program Manager updates the P-Plan (Proposed) to include resource commitments agreed upon for baseline, schedules, and testing; and to include the requirements pertaining to operations and EMP/Shock/Vibration. Upon satisfactory completion of this and all other P-Plan actions cited above, XD approves the P-Plan (Block 13) and ensures update of the resource commitments in the CMC Data Base (Block 10).

Block 14—P-Plan (Approved)

(f) The P-Plan (Approved) shows all CMD-controlled items, current schedules, and the inter-program linkages. The P-Plan (Approved) is the basis for ensuring that the acquisition process conforms to Command Policy and Guidance (Block 9). It serves as the XD-Controller's master checklist for the acquisition, installation, and test activities in Phase C. Deviations from the P-Plan (Approved) become action items for the XD-Controller, as described in succeeding blocks.

Block 15—Acquisition Complies with P-Plan

Block 16—Change P-Plan

(g) Acquisition of the change must comply with the P-Plan (Approved). Only through the P-Plan (Approved) can Space Command commit CMC resources. Thus, P-Plan approval must occur before acquisition contract award.

(h) XD, through the Program Manager and others, ensures that the acquisition proceeds in compliance with the P-Plan (Approved). If deviations to the P-Plan (Approved) occur during the acquisition process (Block 15), XD takes steps with the agencies and groups involved to correct the deviations. If such steps are not successful (Block 16), XD refers the deviations to the Phase B P-Plan approval cycle, where all parties concerned consider possible impacts on other changes, architectures, etc—as in the pre-approval analysis. The process then recycles through Blocks 7, 12, and 13 until XD approval, which is based on resolution of the deviation issues.

(i) When the acquisition complies with the P-Plan (Approved), installation and testing proceed using approved test plans.

Block 17—XD Test Preparation Assistance

Block 18—Test Preparation

Block 19—Test Preparation Adequate

(j) The Program Manager ensures that test plans (Block 18) comply with the test requirements and resources identified in the P-Plan (Approved). Operational test plans must be approved by J-3 in accordance with N/S draft Regulation 55-9. Test plans which affect TW/AA system resources are subject to approval by the SIO. XD supports the test preparation (Block 17) by assisting the Program Manager in the development of specific test plans. XD reviews test preparations for compliance with resource commitments and integration standards (Block 19). XD approval of test preparation (Block 19) is required prior to start of testing (Block 21).

Block 20—Installation

(k) Facility modification and equipment installation proceed according to the acquisition management documents *and* the P-Plan (Approved). The Program

Manager is the CPR for ensuring compliance with the P-Plan. XDC monitors and assists as required.

Block 21—Testing (DT&E and OT&E) and Facilities Comply with P-Plan Requirements

Block 22—Change P-Plan

(l) At this point, the system undergoes DT&E and OT&E (Block 21). Now the XD Controller ensures compliance with the P-Plan (Approved) or works with Program Manager and testing and facilities personnel to bring identified shortcomings up to compliance. If testing and facility representatives cannot produce acceptable corrective action (Block 22), the XDC and the Program Manager submit the P-Plan to re-analysis and re-approval, as in Block 16.

Block 23—TW/AA Change

Block 24—TW/AA Certified

Block 25—Corrective Action

(m) For changes that affect the Tactical Warning/Attack Assessment System (TW/AA) (Block 23) the System Integration Office (SIO) certifies the change (Block 24) in accordance with current SIO TW/AA Certification procedures. If the TW/AA change fails the certification procedure, the SIO identifies the reason. The Program Manager must then initiate and ensure completion of the required corrective action (Block 25).

Block 26—Operational Acceptance

Block 27—HQ Review and Action

(n) After completion of testing (Block 21) and (if required) SIO certification (Block 24), the operational authority (usually DO or IN) reviews the results for Operational Acceptance (Block 26). The operational authority recommends IOC or requests Headquarters review of deficiencies and necessary corrective actions (Block 27).

Block 28—CMC Change Completion

(o) The Commander, DCS/Operations, DCS Intelligence, or other designated authority declares IOC (Block 28). The hardware and software, along with related documentation, operating and maintenance data and spares, transfer to CMC operational control and configuration management. Facilities changes, with accompanying plant-in-place records and as-built drawings, also transfer to CMC configuration management. The Program Manager and system operational authority identify residual action items. The procuring agency and NORAD and Space Command establish agreement on schedules and responsibilities for completing the residual actions.

Block 29—Current CMC Baseline

(p) Operational and facilities configuration control authorities ensure update of current CMC Baseline (Block 29). XD ensures data capture and processing of changes to the XD-controlled data base.

TABLE 2
SUGGESTED ACTIVITIES AND MILESTONES

400	300	100	52-J	MISC. H/W	S/W	FAC. MOD
SON	PAR	SOR/TSR	SON	OAR	PMR	FAC. FEAS. STUDY
PMO	SOR/TSR	T&E MASTER PLAN	PMO	MCCB-A/M	S/W CDR	CHANGE REQUEST
*SOC	FAC. FEAS.	*P-PLAN	PMP	*P-PLAN	*P-PLAN	CMC CCB APPROVAL
PMP	OAR	MOA	AF-1067	SON	*OSTF H/W CHECKOUT	CMC FB APPROVAL
DRAFT ICD	OPD	*ICD			*OSTF OPT&E	*P-PLAN
*EMP	OPP	PMR	MCCB-A/M	*ICD	*OSTF S/W OT&E	CMC FAC. MODS
FAC. FEAS.	T&E Master Plan	CDR	NPA	TSR	*OSTF S/W OT&E	*FINAL CMC FAC. CERTIFICATION
*P-PLAN	*P-PLAN	OSTF FAC. MODS	*P-PLAN	PAR	*CMC OPT&E	*CMC SYSTEM OT&E/ OT&E
SON	*RFP	OSTF FAC. MODS	SPEC'S	CMC INSTALL	*OT&E	*CERTIFICATION
SPEC	*CONTRACT AWARD	*OSTF H/W CHECKOUT	*ICD	*OT&E	*CERTIFICATION	*IOC/FOC
*RFP	PROJECT POR'S	*OSTF OPT&E	ECP	*CERTIFICATION	*CMC S/W OT&E	
*CONTRACT AWARD	*ICD	*OSTF S/W OT&E	ECO	*IOC	*CMC S/W OT&E	
SOR/TSR	MOA	*OSTF S/W OT&E	TRAINING PLAN		*CERTIFICATION	
PROJECT POR'S	CHANGE REQUEST	*CMC INSTALL	CMC INSTALL			
MOA	PROJECT CDR'S	*CMC SYSTEM OT&E/ OT&E	*OT&E			
CHANGE REQUEST	CMC CCB APPROVAL	*FINAL CMC FAC. CERTIFICATION	*OT&E			
*ICD	PMR	SUPPORT MEMO OF AGREEMENT	P&M P/P			
PROJECT CDR'S	S/W CDR	FUNC. CONFIG. AUDIT	*CERTIFICATION			
*TRAINING PLAN	OSTF FAC. MODS	PHYSICAL CONFIG. AUDIT (PCA)	*IOC			
CMC CCB APPROVAL	CMC FB APPROVAL	O&M PROCEDURE				
PMP	*OSTF INSTALL	AF-1319				
S/W CDR	CMC FAC. MODS	*CERTIFICATION				
T&E MASTER PLAN	OSTF H/W CHECKOUT	*IOC/FOC				
OSTF FAC. MODS	*FINAL CMC FAC. CERTIFICATION					
CMC FB APPROVAL	*OSTF OPT&E					
CMC FAC. MODS	*OSTF S/W OT&E					
*OSTF INSTALL	*OSTF S/W OT&E					
OSTF H/W CHECKOUT	*CMC INSTALL					
*FINAL CMC FAC. CERTIFICATION	*CMC SYSTEM OT&E/ OT&E					
*OSTF OPT&E						
*OSTF S/W OT&E	SUPPORT MEMO OF AGREEMENT					
*OSTF S/W OT&E	FUNC. CONFIG. AUDIT					
*CMC INSTALL	PHYSICAL CONFIG. AUDIT (PCA)					
*CMC SYSTEM OT&E/ OT&E	O&M P/P					
SUPPORT MEMO OF AGREEMENT	*CERTIFICATION					
FUNC. CONFIG. AUDIT	*IOC/FOC					
PHYSICAL CONFIG. AUDIT						
O&M P/P						
*CERTIFICATION						
*IOC/FOC						

* REQUIRED FOR AD CONTROL PROCESS
NOTE: OSTF REQUIREMENTS APPLY TO THE TOTC

Chapter 3

CMC PROGRAMMING PLAN FORMAT

3-1. Procedures:

a. When the Program Manager prepares the NORAD Programming Plan, and through his/her DCS or Chief of Special Staff Element, submits it to XD. Upon receipt of a P-Plan (Proposed), XD assigns a P-Plan number and XD Controller. The P-Plan (Proposed) contains a compilation of the controlled resources and controlled schedules required by the proposed change. Controlled resources and schedules are those which are vital to successful change implementation; XD tracks these throughout the change control process. The P-Plan also contains data related to technical, operational and test requirements. XD approves the P-Plan after assurance that required resource commitments are made and that the proposed change causes no conflicts in the overall integration process. The P-Plan (Approved) shows approval of each resource commitment by the organization responsible for the resource. Any changes to the controlled items or requirements following P-Plan approval must undergo further XD evaluation to identify and resolve impacts.

b. The Program Manager is responsible for agreement between procurement, installation and test activities and the P-Plan (Approved). The XD-Controller identifies potential conflicts as the program progresses and works with the necessary Program Managers or Boards in resolving conflicts.

3-2. P-Plan Outline:

a. The seven sections of the P-Plan provide general background information, inter-program linkages, security guidance and funding data.

b. The P-Plan annexes provide details on resource requirements and schedules. The annexes also list resource commitments one by one, signed off by authorized offices to ensure availability of the resources according to schedule.

c. The P-Plan outline is as follows:

(1) Sections
- 1.0 Background
- 2.0 Purpose
- 3.0 Description
- 4.0 Inter-Program Linkages
- 5.0 Security Guidance
- 6.0 References
- 7.0 Funding

(2) Annexes
- A Resources
- B Integration Testing
- C Schedules
- D Logistics Requirements
- E Operational Requirements
- F Technical Requirements
- G SIO Certification

3-3. Contents of the Seven Sections: For Sections 1-7, the outline and content for both proposed and approved versions remain the same except for contents revisions required for accuracy and completeness. The contents are as follows:

a. Section 1.0 BACKGROUND:

Contents. A brief summary of history of the change, including identity (office and person) of the initiator and actions by others (DCSs, boards and panels).

b. Section 2.0 PURPOSE:

Contents. A brief summary of the purpose of the change.

c. Section 3.0 DESCRIPTION:

Contents. A general description of the change. (Note that details are presented in Annexes.)

d. Section 4.0 INTER-PROGRAM LINKAGES:

Contents. Inter-program linkages, as developed jointly by the Program Manager and the XD Controller, including such items as:

- Phasing with other planned changes to preclude loss of operational capability.
- Phasing and design criteria to match the existing and planned interfaces.
- Critical milestones related to potential contractual agreements affecting funding and design factors.

e. Section 5.0 SECURITY GUIDANCE:

Contents. Security classification(s) and authorities related to the P-Plan. Where applicable, identify industrial security requirements.

f. Section 6.0 REFERENCES:

Contents. References related to the approvals, responsibilities, descriptions, etc, associated with the change.

Section 2.0 FUNDING

Contents. Program Element Code number along with the funding categories and sources by Fiscal Year.

In preparing these seven sections, the Program Manager uses information provided by the change initiator, other DCSs, Boards and Panels, related plans and design data as outlined in Section 2.0. To preclude unnecessary repetition, he or she may cross-reference the P-Plan to official program documents. To ensure completeness, the Program Manager should consult with the XD-Controller during the preparation of these seven sections.

3-4. Contents of the Annexes:

a. The P-Plan annexes contain details related to resources, technical and operational requirements; schedules; manpower/personnel; testing and training. For the P-Plan (Proposed), the Program Manager states the requirements. To facilitate the process of stating requirements, paragraph 3.3.1 provides a checklist approach for Annex A, Resources, and paragraph 3.3.3 provides a list of scheduled items for Annex C, Schedules.

b. XD and the resource-responsible organizations review the requirements identified in the P-Plan (Proposed) annexes to confirm them and make specific commitments as required. The resource-responsible organizations then commit these resources by signature, to form the P-Plan (Approved), which serves as guidance for the Program Manager. During the course of the acquisition, the Program Manager must bring all commitment deviations to the attention of the XD-Controller for reconsideration as outlined in Section 2.0.

c. The following sections describe the contents of each annex.

(1) Annex A Resources. Table I and the associated tables (Ia-II)* provide the means for identifying the resources required to support the change. Table I serves several purposes. First, it shows the point of contact available to the Program Manager for the preparation of Annex A for the P-Plan (Proposed). Second, it is a checklist for the Program Manager and the XD-Controller to use in identifying resource requirements for the P-Plan (Proposed). Third, it identifies the office and references for each resource committed in the P-Plan (Approved). Table I is an index to the resource commitments signed off one by one in Tables Ia through II.

Contents. In Annex A, Table I, the Program Manager identifies required resources by checking one of the following two columns under Resource Requirements.

(a) Baseline—Need the resource without modification from its baseline configuration, to ensure compatibility.

(b) Modified Baseline—Need to modify the resource to match the change. (Program Manager must include a description of the modification along with a description of critical relationships.)

If the Program Manager adds a new resource, he or she must identify it in Table I and provide a separate description.

(2) Annex B Integration Testing:

Contents. In Annex B, the Program Manager states the test objectives, including verification that technical and operational requirements be met. Annex also includes test methodology, test concepts, and special test requirements including test equipment, cryptographic key material, data monitoring/retrieval/analysis capability and required scenario data. In this Annex, the Program Manager designates a Test Manager and clearly states the conditions to be met for declaration of IOC. He or she also identifies the command element having authority to declare IOC for this new system or change.

(3) Annex C Schedules:

Contents. In Annex C, the Program Manager lists major events which affect the integration of changes, individually and collectively. He or she lists them chronologically by scheduled completion date but also shows start dates. This schedule then defines the required availability dates for resources. Table 2 provides a list of suggested activities and milestones to be used for CMC changes in general. Those items asterisked are required.

(4) Annex D Logistics Requirements:

Contents. In Annex D, the Program Manager identifies personnel training requirements for operations, maintenance and testing. He or she also identifies sources of personnel, maintenance and operational manuals, the spare parts required for maintenance of new or modified equipments.

*These are generic prototype tables. To ensure an up-to-date list of resources, at time of preparation XD provides current tables to the Program Manager. To assist in preparing the P-Plan (Proposed), XD also provides data on "XD Approved" changes and those changes in the planning cycle not yet included in the XD control process.

(5) Annex E Operational Requirements:

Contents. In Annex E, the Program Manager provides a description of the critical operational requirements (response times, data capacities, system availability, etc) which must be maintained during the acquisition and satisfied by testing.

(6) Annex F Technical Requirements:

Contents. In Annex F, the Program Manager provides a description of the critical technical requirements related to EMP/shock/vibration, reliability, maintainability, availability, and interfaces.

(7) Annex G SIO Certification:

Contents. In Annex G, the Program Manager identifies all change activities requiring SIO participation (reviews, approvals, Certification) for those changes involving TW/AA systems.

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SUMMARY OF CHANGES

This revision develops a new format for CMC Programming Plans; defines a Change Control process for the commitment of CMC resources and for the integration of changes into an operational environment; and requires P-Plans to be approved prior to actual acquisition.

GLOSSARY

ADIC	ADCOM Intelligence Center
ADP	Automatic Data Processing
AFM	Air Force Manual
AFR	Air Force Regulation
AFSC	Air Force System Command
ALCC	Air Launch Control Center
BCE	Base Civil Engineer
C-E	Communications-Electronics
CMC	Cheyenne Mountain Complex
CMD	Cheyenne Mountain Development
CR	Change Request
CRB	Configuration Review Board
CSS	Communications System Segment
C³RB	Command and Control Communications Requirements Board
DAR	Data Automation Requirement
DCR	Design Change Request
DCS	Deputy Chief or Staff
DPD	Data Project Directive
DPP	Data Project Plan
DR	Discrepancy Report
DT&E	Development Test and Evaluation
ECP	Engineering Change Proposal
EMP	Electromagnetic Pulse
ICCB	IDHS Configuration Control Board
ICRP	IDHS Configuration Review Panel
IDHS	Intelligence Data Handling System
IOC	Initial Operational Capability
I²WG	Interface and Integration Working Group
MDR	Material Deficiency Report
MP	Modification Proposal
NCCB	NORAD Configuration Control Board
NCP	NORAD Command Post
NCS	NORAD Computer System
NORAD	North American Aerospace Defense Command
N/S	NORAD/Space Command
OT&E	Operational Test and Evaluation
PAR	Projected Automation Requirement
PCR	Projected Communications Requirement
PFRC	Program Forces Review Committee
PMD	Program Management Directive
PMP	Program Management Review
POM	Program Objective Memorandum
P-Plans	NORAD Programming Plans
SCC	SPADOC Computation Center
SDN	System Development Notice
SIO	System Integration Office
SMR	Software Modification Request
SOR	Statement of Operational Requirement
TW/AA	Tactical Warning/Attack Assessment
XD	DCS/Cheyenne Mountain Development
XDC	XD Control Directorate
XDI	XD Integration Directorate